

Amendments to the Claims:

The following lists all claims and their status:

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1-4166 (cancelled)

4167. (currently amended): A mixture produced from ~~a portion of~~ a coal formation, ~~the mixture~~ comprising:

an olefin content of less than about 10% by weight; and

an average carbon number greater than about 6 and less than about 35.

4168. (currently amended): The mixture of claim 4167, ~~further comprising an~~ wherein the average carbon number is less than about 30.

cy 4169. (currently amended): The mixture of claim 4167, ~~further comprising an~~ wherein the average carbon number is less than about 25.

4170. (currently amended): The mixture of claim 4167, further comprising:  
non-condensable hydrocarbons comprising hydrocarbons having carbon numbers of less than 5; and

wherein a weight ratio of the hydrocarbons having carbon numbers from 2 through 4, ~~to methane,~~ to methane in the mixture is greater than approximately 1.

4171. (original): The mixture of claim 4167, further comprising condensable hydrocarbons, wherein less than about 1 % by weight, when calculated on an atomic basis, of the condensable hydrocarbons is nitrogen, wherein less than about 1 % by weight, when calculated on an atomic basis, of the condensable hydrocarbons is oxygen, and wherein less than about 1 % by weight, when calculated on an atomic basis, of the condensable hydrocarbons is sulfur.

4172. (currently amended): The mixture of claim 4167, further comprising ammonia, wherein greater than about 0.05 % by weight of the ~~produced~~ mixture is ammonia.

4173. (original): The mixture of claim 4167, further comprising condensable hydrocarbons, wherein an olefin content of the condensable hydrocarbons is greater than about 0.1 % by weight of the condensable hydrocarbons, and wherein the olefin content of the condensable hydrocarbons is less than about 15 % by weight of the condensable hydrocarbons.

4174. (original): The mixture of claim 4167, further comprising condensable hydrocarbons, wherein less than about 15 % by weight of the condensable hydrocarbons have a carbon number greater than about 25.

C4 4175. (previously presented): The condensable hydrocarbons of claim 4174, wherein less than about 1 % by weight, when calculated on an atomic basis, of the condensable hydrocarbons is nitrogen, wherein less than about 1 % by weight, when calculated on an atomic basis, of the condensable hydrocarbons is oxygen, and wherein less than about 1 % by weight, when calculated on an atomic basis, of the condensable hydrocarbons is sulfur.

4176. (previously presented): The mixture of claim 4167, further comprising condensable hydrocarbons, wherein greater than about 20 % by weight of the condensable hydrocarbons are aromatic compounds.

4177. (currently amended): The mixture of claim 4167, further comprising:

a non-condensable component hydrocarbons comprising hydrocarbons having carbon numbers of less than about 5, wherein a weight ratio of the hydrocarbons having carbon number from 2 through 4, ~~to methane~~, to methane in the mixture is greater than approximately 1;

~~wherein the non-condensable hydrocarbons further comprise H<sub>2</sub>~~, wherein greater than about 15 % by weight of the non-condensable component hydrocarbons comprises H<sub>2</sub>; and condensable hydrocarbons, comprising:

oxygenated hydrocarbons, wherein greater than about 1.5 % by weight of the condensable hydrocarbons comprises oxygenated hydrocarbons; -and

aromatic compounds, wherein greater than about 20 % by weight of the condensable hydrocarbons comprises aromatic compounds.

4178. (currently amended): The mixture of claim 4167, further comprising:

condensable hydrocarbons, wherein less than about 5 % by weight of the condensable hydrocarbons comprises hydrocarbons having a carbon number greater than about 25;

wherein the condensable hydrocarbons further comprise:

oxygenated hydrocarbons, wherein greater than about 5 % by weight of the condensable hydrocarbons comprises oxygenated hydrocarbons; and

aromatic compounds, wherein greater than about 30 % by weight of the condensable hydrocarbons comprises aromatic compounds; and

a non-condensable hydrocarbons component comprising  $H_2$ , wherein greater than about 15 % by weight of the non-condensable hydrocarbons component comprises  $H_2$ .

4179. (original): The mixture of claim 4167, further comprising a condensable mixture, comprising:

olefins, wherein about 0.1 % by weight to about 15 % by weight of the condensable mixture comprises olefins; and

asphaltenes, wherein less than about 0.1 % by weight of the condensable mixture comprises asphaltenes.

4180. (previously presented): The mixture of claim 4179, further comprising oxygenated hydrocarbons, wherein less than about 15 % by weight of the condensable mixture comprises oxygenated hydrocarbons.

4181. (currently amended): The mixture of claim 4167, further comprising a condensable mixture, comprising wherein the condensable mixture comprises:

olefins, wherein about 0.1 % by weight to about 2 % by weight of the condensable mixture comprises olefins; and

multi-ring aromatics, wherein less than about 2 % by weight of the condensable mixture comprises multi-ring aromatics with more than two rings.

4182. (previously presented): The mixture of claim 4180, further comprising oxygenated hydrocarbons, wherein greater than about 25 % by weight of the mixture comprises oxygenated hydrocarbons.

4183. (currently amended): The mixture of claim 4167, further comprising:

cy a non-condensable hydrocarbons component, wherein the non-condensable component comprises hydrocarbons ~~comprise H<sub>2</sub>~~, wherein greater than about 10 % by weight of the non-condensable hydrocarbons component comprises H<sub>2</sub>;

ammonia, wherein greater than about 0.5 % by weight of the mixture comprises ammonia; and

hydrocarbons, wherein a weight ratio of hydrocarbons having greater than about 2 carbon atoms, ~~to methane~~, to methane is greater than about 0.4.

4184-4320 (cancelled)

4321. (currently amended): A mixture produced from ~~a portion of~~ a coal formation, comprising:

condensable hydrocarbons, wherein less than about 15 % by weight of the condensable hydrocarbons have a carbon number greater than 20; and

wherein the condensable hydrocarbons comprise olefins, and wherein an olefin content of the condensable component is less than about 10 % by weight of the condensable component.

4322. (currently amended): The mixture of claim 4321, further comprising non-condensable hydrocarbons, wherein the non-condensable hydrocarbons comprise hydrocarbons having carbon

numbers of less than 5, and wherein a weight ratio of hydrocarbons having carbon numbers from 2 through 4, ~~to methane~~, to methane is greater than approximately 1.

4323. (currently amended): The mixture of claim 4321, ~~wherein the condensable hydrocarbons further comprise olefins, and~~ wherein about 0.1 % by weight to about 15 % by weight of the condensable hydrocarbons are olefins.

4324. (original): The mixture of claim 4321, further comprising non-condensable hydrocarbons, and wherein a molar ratio of ethene to ethane in the non-condensable hydrocarbons ranges from about 0.001 to about 0.15.

4325. (currently amended): The mixture of claim 4321, ~~wherein the condensable hydrocarbons further comprise nitrogen-containing compounds, and~~ wherein less than about 1 % by weight, when calculated on an atomic basis, of the condensable hydrocarbons is nitrogen.

4326. (currently amended): The mixture of claim 4321, ~~wherein the condensable hydrocarbons further comprise oxygen-containing compounds, and~~ wherein less than about 1 % by weight, when calculated on an atomic basis, of the condensable hydrocarbons is oxygen.

4327. (currently amended): The mixture of claim 4321, ~~wherein the condensable hydrocarbons further comprise sulfur-containing compounds, and~~ wherein less than about 1 % by weight, when calculated on an atomic basis, of the condensable hydrocarbons is sulfur.

4328. (currently amended): The mixture of claim 4321, ~~wherein the condensable hydrocarbons,~~ wherein about 5 % by weight to about 30 % by weight of the condensable hydrocarbons comprise oxygen containing compounds, and wherein the oxygen containing compounds comprise phenols.

4329. (currently amended): The mixture of claim 4321, ~~wherein the condensable hydrocarbons further comprise aromatic compounds, and~~ wherein greater than about 20 % by weight of the condensable hydrocarbons are aromatic compounds.

4330. (currently amended): The mixture of claim 4321, ~~wherein the condensable hydrocarbons further comprise multi-ring aromatics, and~~ wherein less than about 5 % by weight of the condensable hydrocarbons comprises multi-ring aromatics with more than two rings.

4331. (currently amended): The mixture of claim 4321, ~~wherein the condensable hydrocarbons further comprise asphaltenes, and~~ wherein less than about 0.3 % by weight of the condensable hydrocarbons are asphaltenes.

Cy 4332. (currently amended): The mixture of claim 4321, ~~wherein the condensable hydrocarbons further comprise cycloalkanes, and~~ wherein about 5 % by weight to about 30 % by weight of the condensable hydrocarbons are cycloalkanes.

4333. (currently amended): The mixture of claim 4321, further comprising a non-condensable hydrocarbons component, wherein the non-condensable ~~hydrocarbons component~~ comprises molecular hydrogen, and wherein the molecular hydrogen is about 10 % by volume to about 80 % by volume of the non-condensable ~~component hydrocarbons~~ at 25 °C and one atmosphere absolute pressure.

4334. (original): The mixture of claim 4321, further comprising ammonia, wherein greater than about 0.05 % by weight of the produced mixture is ammonia.

4335. (original): The mixture of claim 4321, further comprising ammonia, and wherein the ammonia is used to produce fertilizer.

4336. (currently amended): The mixture of claim 4321, wherein about 0.1 % to about 5 % by weight of the condensable ~~component~~ hydrocarbons comprises olefins.

4337. (currently amended): The mixture of claim 4321, wherein about 0.1 % to about 2 % by weight of the condensable hydrocarbons component comprises olefins.

4338. (currently amended): The mixture of claim 4321, ~~wherein the condensable component further comprises oxygenated hydrocarbons, and~~ wherein greater than about 1.5 % by weight of the condensable ~~component~~ hydrocarbons comprises oxygenated hydrocarbons.

4339. (currently amended): The mixture of claim 4321, ~~wherein the condensable component further comprises oxygenated hydrocarbons, and~~ wherein greater than about 25 % by weight of the condensable ~~hydrocarbons component~~ hydrocarbons comprises oxygenated hydrocarbons.

cy 4340. (currently amended): The mixture of claim 4321, further comprising a non-condensable hydrocarbons component, wherein the non-condensable ~~hydrocarbons comprise component~~ comprises H<sub>2</sub>, and wherein greater than about 5 % by weight of the non-condensable ~~component~~ hydrocarbons comprises H<sub>2</sub>.

4341. (currently amended): The mixture of claim 4321, further comprising a non-condensable component hydrocarbons, wherein the non-condensable ~~hydrocarbons comprise component~~ comprises H<sub>2</sub>, and wherein greater than about 15 % by weight of the non-condensable ~~component~~ hydrocarbons comprises H<sub>2</sub>.

4342. (currently amended): The mixture of claim 4321, further comprising non-condensable hydrocarbons, wherein the non-condensable hydrocarbons comprise hydrocarbons having carbon numbers of less than 5, and wherein a weight ratio of hydrocarbons having carbon numbers from 2 through 4 to methane, ~~to methane~~, is greater than approximately 0.3.

4343-5149 (cancelled)